

Work Order ID 165085***165085***

Page 1

Tuesday, August 15, 2017 4:20:42 PM

Item ID: D119-796-033

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AW119 Landing Gear Assembly - Reinforced Wearplate Protection, Float Compatible

Start Date: 8/15/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 8/18/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference: FROM RA112606 REWORK AS PER DSI 9734

Approvals: Process Plan:  Date: AUG 15 2017

Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D119-796-033	A
IIN-D119-796	F

105 QC5- Inspect part completeness to step on W/O 0.00

105

QC

Quality Control

Memo

-Inspect RA 112606

0.00

-Customer returning for rework, holes for skidtube protector kit was not drilled.
Perform rework as per DSI 9734 4.0 17-08-16 

115

0.00

115

Skidtubes

Skidtubes

Memo

-Rework as per DSI 9734 4.0

0.00

 17-08-16

Work Order ID 165085

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165085

Page 2

Item ID: D119-796-033**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** AW119 Landing Gear Assembly - Reinforced Wearplate Protection, Float Compatible**Start Date:** 8/15/2017 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 8/18/2017 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:** FROM RA112606 REWORK AS PER DSI 9734**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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122

QC5- Inspect part completeness to step on W/O

0.00

122

QC

Memo

0.00

Quality Control

① 17-08-16 PD

130

Identify as per dwg & Stock Location: _____

0.00

130

Packaging

Memo

0.00

Packaging

-I.D. with new batch as repair at CHG003.

-Add new paper work.

-Return to customer.

JW 17-08-16

140

QC21- Final Inspection - Work Order Release

0.00

140

QC

Memo

0.00

Quality Control

DAS
21
9-89

AUG 16 2017

AUG 16 2017

Picklist Print

Tuesday, August 15, 2017 4:20:47 PM

Page 1

Work Order ID: 165085

165085

Parent Item: D119-796-033

D119-796-033

Parent Item Name: AW119 Landing Gear Assembly - Reinforced Wearplate Protection, Float Compatible

Start Date: 8/15/2017

Required Date: 8/18/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A NEW ISSUE 15-05-12 JLM VERIFIED BY:DD IPP
REV:B 15.08.25 AS PER ECN15-580 DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D119-796-033		Manufactured	No				Each	0.0000					

D119-796-033

AW119 Landing Gear Assembly - Reinforced Wearplate Protection, Float Compatible

B:163190

**

AUG 15 2017

Location

Loc Qty

Loc Code

rmainspection

-1

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval																																																							
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																							
Root Cause		FAULT CATEGORY																																																													
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :	
Misidentified ☐	Past Due ☐																																																														

DART SERVICE INSTRUCTION

**TO AMEND INSTALLATION INSTRUCTIONS IIN-D119-646 REV. D
AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D119-646 REV. 3**
REF FAA STC: SR02024SE
REF EASA STC: 10040294

1.0 PURPOSE:

The purpose of this Dart Service Instructions is to add D119-646-313/-314 Skidtube Protector Kit to make the D119-646-011/-012/-041/-111/-112/-141/-211/-212/-241 Skidtube Kits and the D119-646-013/-014/-043/-113/-114/-143/-213/-214/-243 Float Skidtube Kits compatible with the 109-0812-68-105 Hoist Structural Provision Kit and the 109-0816-18-301 Rappelling Kit. The D119-646-313 Skidtube Protector, LH replaces the 109-B710-05-201 kit and the D119-646-314 Skidtube Protector, RH replaces the 109-B710-05-202 kit.

2.0 D119-646-011/-012/-041/-111/-112/-141 STANDARD SKIDTUBE MODIFICATION:

The following instructions are for modifying the D119-646-011/-012/-041/-111/-112/-141 Skidtube at CHG 004 and prior, to allow for D119-646-313/-314 Skidtube Protector Kit installation:

- 2.1 Remove D3492-045 Plug Assemblies from two locations on each side of the skidtube as shown in Figure 3.
- 2.2 Position D5376-1 drilling jig tool with the arrow pointing fwd as shown in Figure 3. Use 2x AN3-45A bolts to hold the jig in place. Transfer drill 4x $\varnothing 0.129$ " (#30 drill) holes from D5376-1 drilling jig to skidtube ridge as shown in Figure 3. **Caution:** Drill perpendicular to the skidtube ridge.
- 2.3 Remove drilling jig. Using a 5/16" drill, open up the pilot holes and drill through the skidtube ridge and center web inside of the skidtube. **Caution:** Drill perpendicular to the skidtube ridge.
- 2.4 Countersink 4x 5/16" holes to $\varnothing 0.348$ " (8.84mm) x 100° as shown in Figure 3 and deburr.
- 2.5 Repeat steps 2.2 to 2.4 for the opposite side of the skidtube.
- 2.6 Vacuum the debris from inside of the skidtube. Touch up affected area using (Alodine 1200 or 1201) per MIL-DTL-5541.
- 2.7 Install 8x D5374-3 Bushings in the new holes. Seal bushings with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant as shown in Section C-C.

D119-646-011/-012/-041/-111/-112/-141 Skidtube at CHG 005 and subsequent, do not require modification. Discard D5376-1 Drilling jig and D5374-3 Bushings.

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C	REVISED DSI TO INCLUDE INSTALLATION INSTRUCTIONS FOR FLOAT SKIDTUBES D119-646-013/-014/-043/-113/-114/-143/-213/-214/-243, REF CIR 17-101	VS	17.06.27
B	REVISED DSI TO INCLUDE INSTALLATION INSTRUCTIONS FOR SKIDTUBE ASSY D119-646-011/-012/-111/-112/-041/-141/-241 CHG 005 & SUBSEQUENT AND SKIDTUBE ASSY D119-646-211/-212 CHG 006 & SUBSEQUENT. ADDED NAS1149D0316J WASHERS TO BOM.	WK	17.02.16
A	NEW ISSUE	RF	15.12.10
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	VS		
CHECKED	MB	DRAWING NO.	REV. C
MFG. APPR.	N/A	DSI 9734	SHEET 1 OF 15
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
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3.0 D119-646-211/-212/-241 STANDARD SKIDTUBE MODIFICATION:

The following instructions are for modifying the D119-646-211/212 Skidtube at CHG 005 and prior, and D119-646-241 at CHG 004 and prior, to allow for D119-646-313/-314 Skidtube Protector Kit Installation:

- 3.1 Temporarily remove D3849-043 Training Wearplate from aft end of the skidtube per ICA-D119-646 Section 32.
- 3.2 Position D5376-1 drilling jig tool with the arrow pointing fwd as shown in Figure 3. Use 2x AN3-45A bolts to hold the jig in place. Transfer drill 4x $\varnothing 0.129$ " (#30 drill) holes from D5376-1 drilling jig to skidtube ridge as shown in Figure 3. **Caution:** Drill perpendicular to the skidtube ridge.
- 3.3 Remove drilling jig. Using a 5/16" drill, open up the pilot holes and drill through the skidtube ridge and center web inside of the skidtube. **Caution:** Drill perpendicular to the skidtube ridge.
- 3.4 Countersink 4x 5/16" holes to $\varnothing 0.348$ " (8.84mm) x 100° as shown in Figure 3 and deburr.
- 3.5 Repeat steps 3.2 to 3.4 for the opposite side of the skidtube.
- 3.6 Vacuum the debris from inside of the skidtube. Touch up affected area using (Alodine 1200 or 1201) per MIL-DTL-5541.
- 3.7 Install 8x D5374-3 Bushings in the new holes. Seal bushings with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant as shown in Section C-C.

D119-646-211/-212 Skidtube at CHG 006 and subsequent and D119-646-241 Skidtube at CHG 005 and subsequent, do not require modification. Discard D5376-1 Drilling jig and D5374-3 Bushings.

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4.0 D119-646-013/-014/-043/-113/-114/-143 FLOAT SKIDTUBE MODIFICATION:

The following instructions are for modifying the D119-646-013/-014/-043/-113/-114/-143 Float Skidtube to allow for D119-646-313/-314 Skidtube Protector Kit installation:

- 4.1 Remove D3492-045 Plug Assemblies from two locations on each side of the skidtube as shown in Figure 3.
- 4.2 Position D5376-1 drilling jig tool with the arrow pointing fwd as shown in Figure 3. Use 2x AN3-45A bolts to hold the jig in place. Transfer drill 4x $\varnothing 0.129$ " (#30 drill) holes from D5376-1 drilling jig to skidtube ridge as shown in Figure 3. **Caution:** Drill perpendicular to the skidtube ridge.
- 4.3 Remove drilling jig. Using a 5/16" drill, open up the pilot holes and drill through the skidtube ridge and center web inside of the skidtube. **Caution:** Drill perpendicular to the skidtube ridge.
- 4.4 Countersink 4x 5/16" holes to $\varnothing 0.348$ " (8.84mm) x 100° as shown in Figure 3 and deburr.
- 4.5 Repeat steps 4.2 to 4.4 for the opposite side of the skidtube.
- 4.6 Vacuum the debris from inside of the skidtube. Touch up affected area using (Alodine 1200 or 1201) per MIL-DTL-5541.
- 4.7 Install 8x D5374-3 Bushings in the new holes. Seal bushings with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant as shown in Section C-C.



5.0 D119-646-213/-214/-243 FLOAT SKIDTUBE MODIFICATION:

The following instructions are for modifying the D119-646-213/-214/-243 Float Skidtube to allow for D119-646-313/-314 Skidtube Protector Kit installation:

- 5.1 Temporarily remove D3849-045 Training Wearplate from aft end of the skidtube per ICA-D119-646 Section 32.
- 5.2 Position D5376-1 drilling jig tool with the arrow pointing fwd as shown in Figure 3. Use 2x AN3-45A bolts to hold the jig in place. Transfer drill 4x $\varnothing 0.129$ " (#30 drill) holes from D5376-1 drilling jig to skidtube ridge as shown in Figure 3. **Caution:** Drill perpendicular to the skidtube ridge.
- 5.3 Remove drilling jig. Using a 5/16" drill, open up the pilot holes and drill through the skidtube ridge and center web inside of the skidtube. **Caution:** Drill perpendicular to the skidtube ridge.
- 5.4 Countersink 4x 5/16" holes to $\varnothing 0.348$ " (8.84mm) x 100° as shown in Figure 3 and deburr.
- 5.5 Repeat steps 5.2 to 5.4 for the opposite side of the skidtube.
- 5.6 Vacuum the debris from inside of the skidtube. Touch up affected area using (Alodine 1200 or 1201) per MIL-DTL-5541.
- 5.7 Install 8x D5374-3 Bushings in the new holes. Seal bushings with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant as shown in Section C-C.

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6.0 INSTALLATION OF D119-646-313/-314 ONTO D119-646-011/-012/-041/-111/-112/-141:

- 6.1 Remove all D3492-045 Plug Assemblies from skidtube fwd of the ground handling wheel lugs.
- 6.2 For installation of the D119-646-313/-314 Skidtube Protector Kit onto the D119-646-011/-012/-041/-111/-112/-141 Skidtube at CHG 005 and subsequent, Install NAS1149D0316J and NAS1149D0332J washers as shown in Detail G, Figure 6.
- 6.3 If the D119-646-314 Skidtube Protector Kit is required for hoisting operations on the RH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 6.4 If the D119-646-313 Skidtube Protector Kit is required for hoisting operations on the LH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 6.5 If the D119-646-314 Skidtube Protector Kit is required for rappelling operations on the RH side of the aircraft install D5371-2 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 6.6 If the D119-646-313 Skidtube Protector Kit is required for rappelling operations on the LH side of the aircraft install D5371-1 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 6.7 Install D5369-2 Cable Guard on the RH side of the aircraft using 6x AN3-47A bolts, 6x D5374-1 Bushings, 6x D4506-3 Washers, 12x NAS1149D0332J washers, 6x MS21042L3 nuts as shown in Figure 1 Section A-A. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 6.8 Install D5369-1 Cable Guard on the LH side of the aircraft using 6x AN3-47A bolts, 6x D5374-1 Bushings, 6x D4506-3 Washers, 12x NAS1149D0332J washers, 6x MS21042L3 nuts as shown in Figure 1 Section A-A. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 6.9 Update aircraft log book to indicate installation of the D119-646-313/-314 kit and adjust weight and balance record for the aircraft with weight and balance data provided in Section 11.0 of this document.

NOTE: Additional NAS1149D0332J washers may be installed under the nuts to ensure 1.5 - 4 threads in safety on the bolts. Although not generally necessary, it is also acceptable to replace the AN3 bolts provided with longer or shorter AN3 bolts, if required.

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DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
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7.0 INSTALLATION OF D119-646-313/-314 ONTO D119-646-211/-212/-241:

- 7.1 Remove and discard all hardware attaching the training wearplates in front of the skidtube ground handling lugs.
- 7.2 For installation of the D119-646-313/-314 Skidtube Protector Kit onto the D119-646-211/-212 Skidtube at CHG 006 and subsequent, and D119-646-241 Skidtube at CHG 005 and subsequent, remove all D3492-045 Plug Assemblies from skidtube fwd of the ground handling wheel lugs & install NAS1149D0316J and NAS1149D0332J washers as shown in Detail G, Figure 6.
- 7.3 If the D119-646-314 Skidtube Protector Kit is required for hoisting operations on the RH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 7.4 If the D119-646-313 Skidtube Protector Kit is required for hoisting operations on the LH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 7.5 If the D119-646-314 Skidtube Protector Kit is required for rappelling operations on the RH side of the aircraft install D5371-2 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 7.6 If the D119-646-313 Skidtube Protector Kit is required for rappelling operation on the LH side of the aircraft install D5371-1 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 7.7 Reinstall the D3849-043 Training Wearplate on the aft end of the skidtube per ICA-D119-646 Section 32, except for hardware under D5369-1/-2 Cable Guard.
- 7.8 Install D5369-2 Cable Guard on the RH side of the aircraft using 6x AN3-50A bolts, 6x D5374-1 Bushings, 6x D3904-1 Washers, 6x MS21042L3 nuts as shown in Figure 2 Section B-B. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 7.9 Install D5369-1 Cable Guard on the LH side of the aircraft using 6x AN3-50A bolts, 6x D5374-1 Bushings, 6x D3904-1 Washers, 6x MS21042L3 nuts as shown in Figure 2 Section B-B. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 7.10 Update aircraft log book to indicate installation of the D119-646-313/-314 kit and adjust weight and balance record for the aircraft with weight and balance data provided in Section 11.0 of this document.

NOTE: Additional NAS1149D0332J washers may be installed under the nuts to ensure 1.5 - 4 threads in safety on the bolts. Although not generally necessary, it is also acceptable to replace the AN3 bolts provided with longer or shorter AN3 bolts, if required.

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DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
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△ 8.0 INSTALLATION OF D119-646-313/-314 ONTO D119-646-013/-014/-043/-113/-114/-143:

- 8.1 Remove all D3492-045 Plug Assemblies from skidtube fwd of the ground handling wheel lugs.
- 8.2 Trim the D5369-1/-2 Cable Guard per Figure 7.
- 8.3 For installation of the D119-646-313/-314 Skidtube Protector Kit onto the D119-646-013/-014/-043/-113/-114/-143 Float Skidtube, Install NAS1149D0316J and NAS1149D0332J washers as shown in Detail G, Figure 6.
- 8.4 If the D119-646-314 Skidtube Protector Kit is required for hoisting operations on the RH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 8.5 If the D119-646-313 Skidtube Protector Kit is required for hoisting operations on the LH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 8.6 If the D119-646-314 Skidtube Protector Kit is required for rappelling operations on the RH side of the aircraft install D5371-2 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 8.7 If the D119-646-313 Skidtube Protector Kit is required for rappelling operations on the LH side of the aircraft install D5371-1 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 8.8 Install D5369-2 Cable Guard on the RH side of the aircraft using 2x AN3-47A bolts, 2x D5374-1 Bushings, 2x D4506-3 Washers, 4x NAS1149D0332J washers, 2x MS21042L3 nuts as shown in Figure 7 Section A-A. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 8.9 Install D5369-1 Cable Guard on the LH side of the aircraft using 2x AN3-47A bolts, 2x D5374-1 Bushings, 2x D4506-3 Washers, 4x NAS1149D0332J washers, 2x MS21042L3 nuts as shown in Figure 7, Section A-A. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 8.10 Update aircraft log book to indicate installation of the D119-646-313/-314 kit and adjust weight and balance record for the aircraft with weight and balance data provided in Section 11.0 of this document.

NOTE: Additional NAS1149D0332J washers may be installed under the nuts to ensure 1.5 - 4 threads in safety on the bolts. Although not generally necessary, it is also acceptable to replace the AN3 bolts provided with longer or shorter AN3 bolts, if required.

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MFG. APPR.	N/A	DSI 9734	SHEET 6 OF 15
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	SKIDTUBE PROTECTOR KIT	NTS
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9.0 INSTALLATION OF D119-646-313/-314 ONTO D119-646-213/-214/-243:

- 9.1 Remove and discard all hardware attaching the training wearplates in front of the skidtube ground handling lugs.
- 9.2 Trim the D5369-1/-2 Cable Guard per Figure 8.
- 9.3 For installation of the D119-646-313/-314 Skidtube Protector Kit onto the D119-646-213/-214/-243 Float Skidtube, remove all D3492-045 Plug Assemblies from skidtube fwd of the ground handling wheel lugs & install NAS1149D0316J and NAS1149D0332J washers as shown in Detail G, Figure 6.
- 9.4 If the D119-646-314 Skidtube Protector Kit is required for hoisting operations on the RH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 9.5 If the D119-646-313 Skidtube Protector Kit is required for hoisting operations on the LH side of the aircraft install D5372-1 Plug using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 4 Detail E. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 9.6 If the D119-646-314 Skidtube Protector Kit is required for rappelling operations on the RH side of the aircraft install D5371-2 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 9.7 If the D119-646-313 Skidtube Protector Kit is required for rappelling operation on the LH side of the aircraft install D5371-1 Hook using 4x AN3-45A bolts, 8x NAS1149D0332J washer and 4x MS21042L3 nuts as shown in Section C-C and Figure 5 Detail F. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 9.8 Reinstall the D3849-045 Training Wearplate on the aft end of the skidtube per ICA-D119-646 Section 32, except for hardware under D5369-1/-2 Cable Guard.
- 9.9 Install D5369-2 Cable Guard on the RH side of the aircraft using 2x AN3-50A bolts, 2x D5374-1 Bushings, 2x D3904-1 Washers, 2x MS21042L3 nuts as shown in Figure 8 Section B-B. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 9.10 Install D5369-1 Cable Guard on the LH side of the aircraft using 2x AN3-50A bolts, 2x D5374-1 Bushings, 2x D3904-1 Washers, 2x MS21042L3 nuts as shown in Figure 8 Section B-B. Torque bolts to 15-25 in-lbs (1.7-2.8 N-m).
- 9.11 Update aircraft log book to indicate installation of the D119-646-313/-314 kit and adjust weight and balance record for the aircraft with weight and balance data provided in Section 11.0 of this document.

NOTE: Additional NAS1149D0332J washers may be installed under the nuts to ensure 1.5 - 4 threads in safety on the bolts. Although not generally necessary, it is also acceptable to replace the AN3 bolts provided with longer or shorter AN3 bolts, if required.

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10.0 PARTS LIST:

Qty. -313	Qty. -314	PART NUMBER	DESCRIPTION
X		D119-646-313	SKIDTUBE PROTECTOR, LH
	X	D119-646-314	SKIDTUBE PROTECTOR, RH
6	6	D3904-1	WASHER
6	6	D4506-3	WASHER
1		D5369-1	CABLE GUARD, LH
	1	D5369-2	CABLE GUARD, RH
1		D5371-1	HOOK, LH
	1	D5371-2	HOOK, RH
1	1	D5372-1	PLUG
6	6	D5374-1	BUSHING
8	8	D5374-3	BUSHING
1	1	D5376-1	DRILLING JIG
4	4	AN3-45A	BOLT
6	6	AN3-47A	BOLT
6	6	AN3-50A	BOLT
18	18	NAS1149D0332J	WASHER
4	4	NAS1149D0316J	WASHER
10	10	MS21042L3	NUT

11.0 WEIGHT AND BALANCE

The following weight and balance changes are applicable:

Installation	Weight	LONGITUDINAL		LATERAL	
		Arm	Moment	Arm	Moment
D119-646-313 SKIDTUBE PROTECTOR, LH ON STANDARD SKIDTUBE	4.3 lb 1.95 kg	108.1 in 4.3 m	465 in-lb 8.4 kg-m	-43.4 in 1.7 m	-187 in-lb -3.3 kg-m
D119-646-314 SKIDTUBE PROTECTOR, RH ON STANDARD SKIDTUBE	4.3 lb 1.95 kg	108.1 in 4.30 m	465 in-lb 8.4 kg-m	43.4 in 1.7 m	187 in-lb 3.3 kg-m
△ D119-646-313 SKIDTUBE PROTECTOR, LH ON FLOAT SKIDTUBE	1.6 lb 0.72 kg	133.3 in 3.38 m	213 in-lb 2.4 kg-m	-43.4 in -1.7 in	69 in-lb 1.2 kg-in
△ D119-646-314 SKIDTUBE PROTECTOR, RH ON FLOAT SKIDTUBE	1.6 lb 0.72 kg	133.3 in 3.38 m	213 in-lb 2.4 kg-m	43.4 in 1.7 in	69 in-lb 1.2 kg-in

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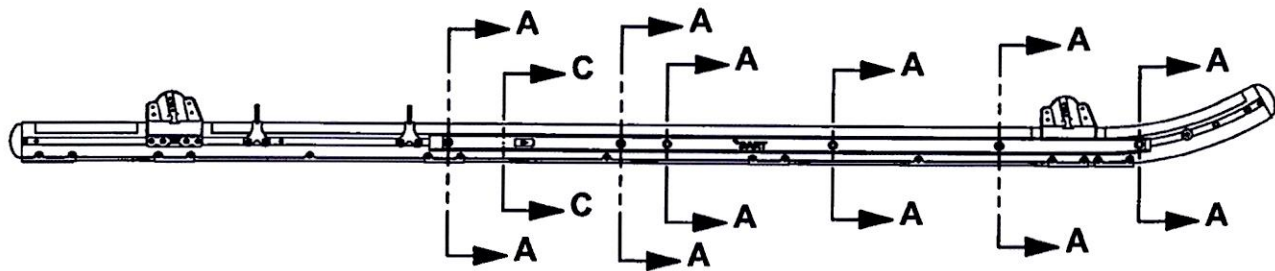


FIGURE 1: D119-646-314 SKIDTUBE PROTECTOR KIT, RH (SHOWN)
 (D119-646-313 SKIDTUBE PROTECTOR, LH (OPPOSITE))
 (SHOWN INSTALLED ON D119-646-011/-012/-111/-112 SKIDTUBES)

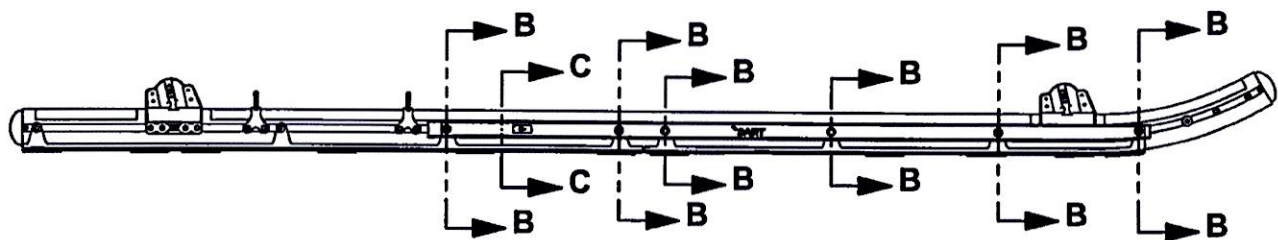


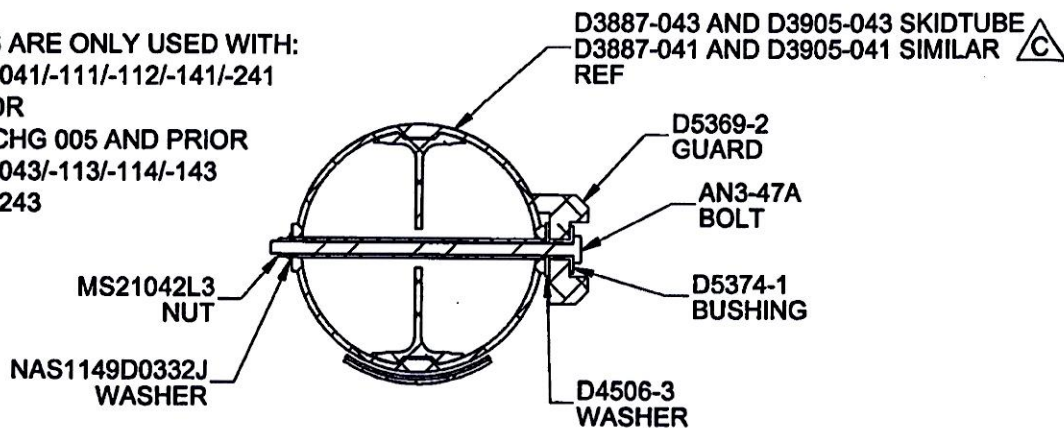
FIGURE 2: D119-646-314 SKIDTUBE PROTECTOR KIT, RH (SHOWN)
 (D119-646-313 SKIDTUBE PROTECTOR, LH (OPPOSITE))
 (SHOWN INSTALLED ON D119-646-211/-212 SKIDTUBES)

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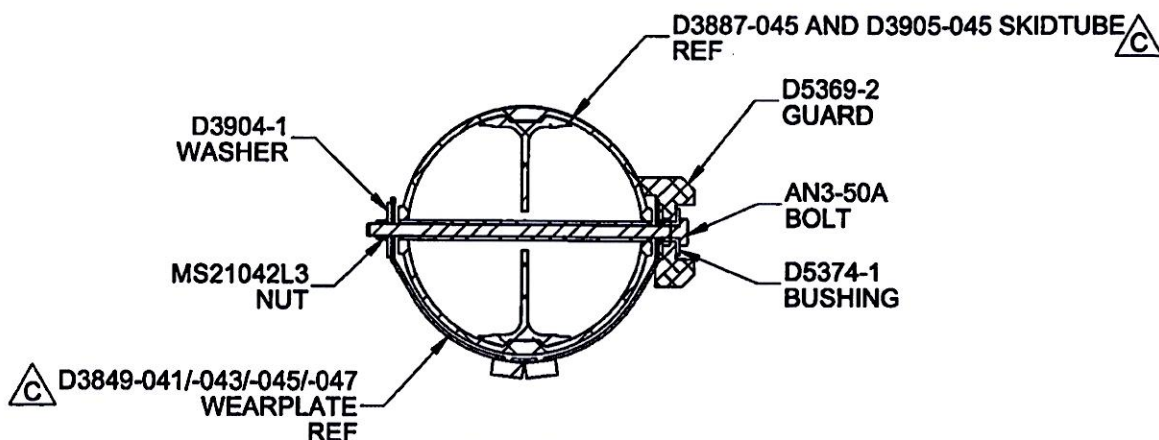
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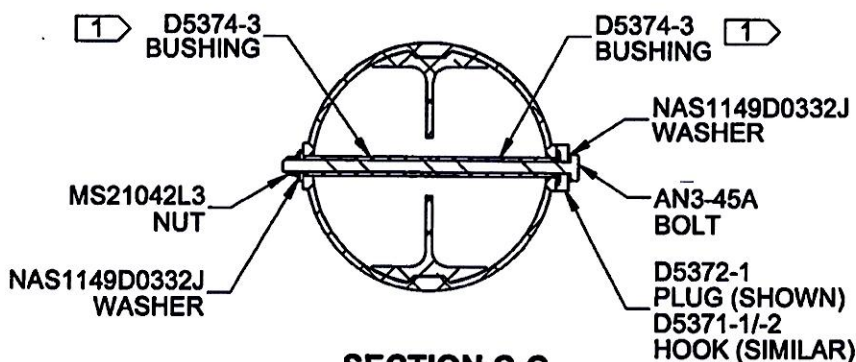
- 1) D5374-3 BUSHINGS ARE ONLY USED WITH:
 - D119-646-011/-012/-041/-111/-112/-141/-241
 CHG 004 AND PRIOR
 - D119-646-211/-212 CHG 005 AND PRIOR
 - D119-646-013/-014/-043/-113/-114/-143
 C D119-646-213/-214/-243



SECTION A-A



SECTION B-B



SECTION C-C

(D5369-2 NOT SHOWN FOR CLARITY)

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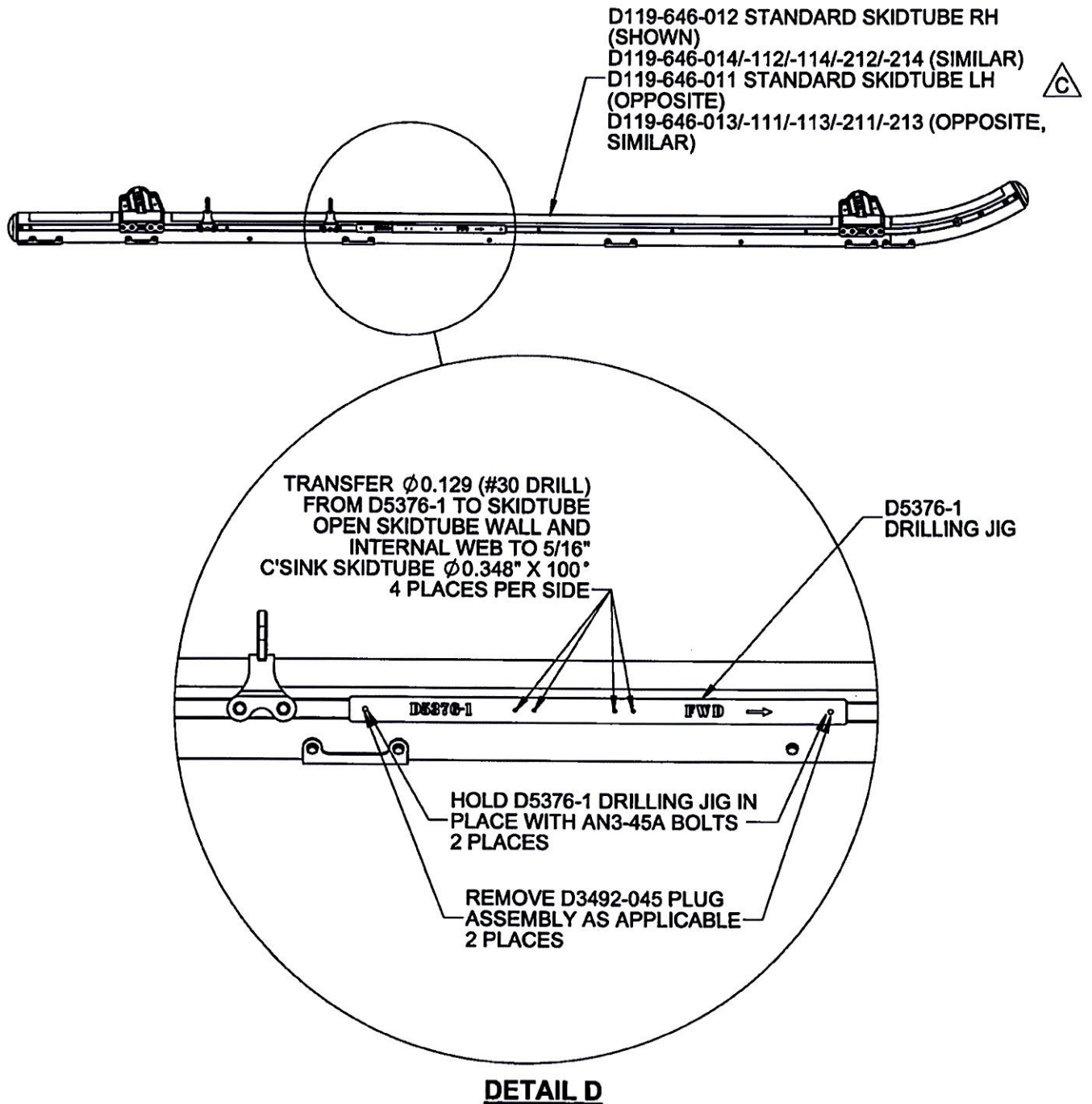


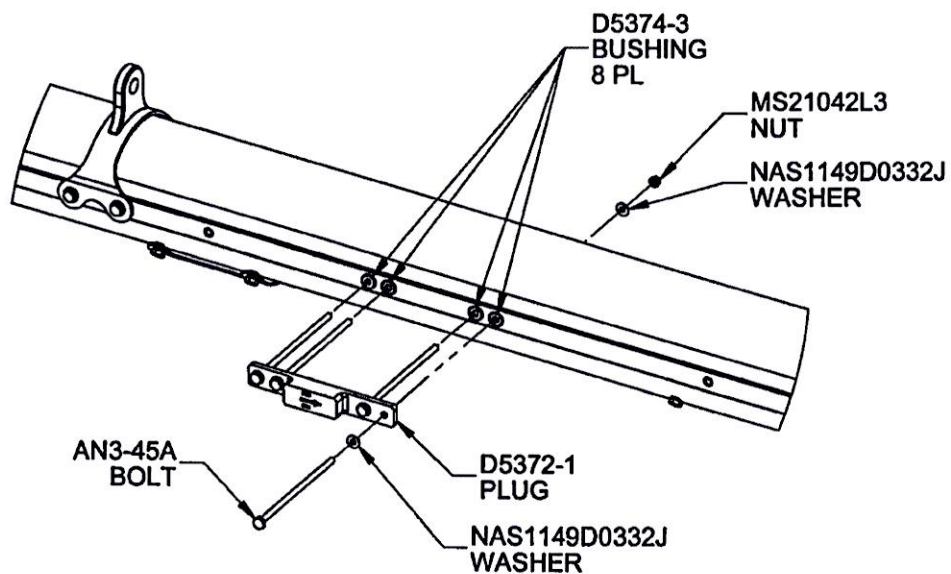
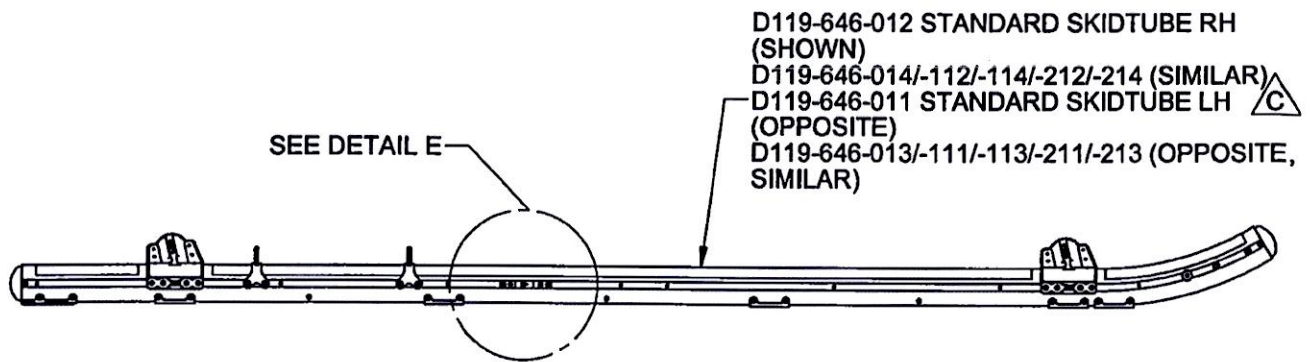
FIGURE 3: USING D5376-1 DRILLING JIG

D5376-1 DRILLING JIG IS ONLY USED WITH SKIDTUBE ASSEMBLIES:

- D119-646-011/-012/-041/-111/-112/-141/-241 CHG 004 AND PRIOR
- D119-646-211/-212 CHG 005 AND PRIOR
- D119-646-013/-014/-043/-113/-114/-143/-213/-214/-243 FLOAT SKIDTUBES

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DETAIL E

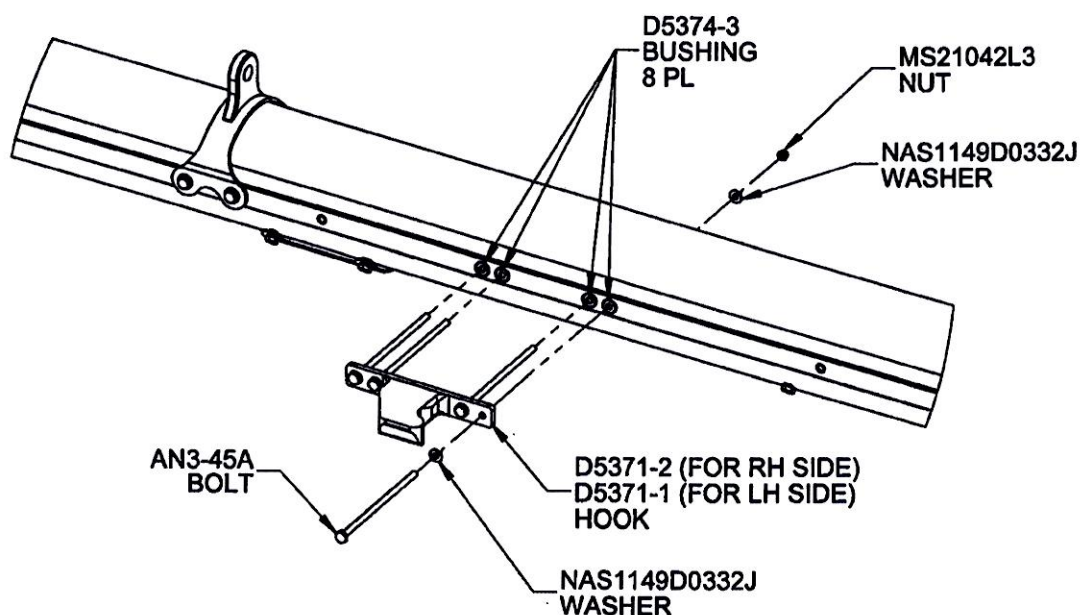
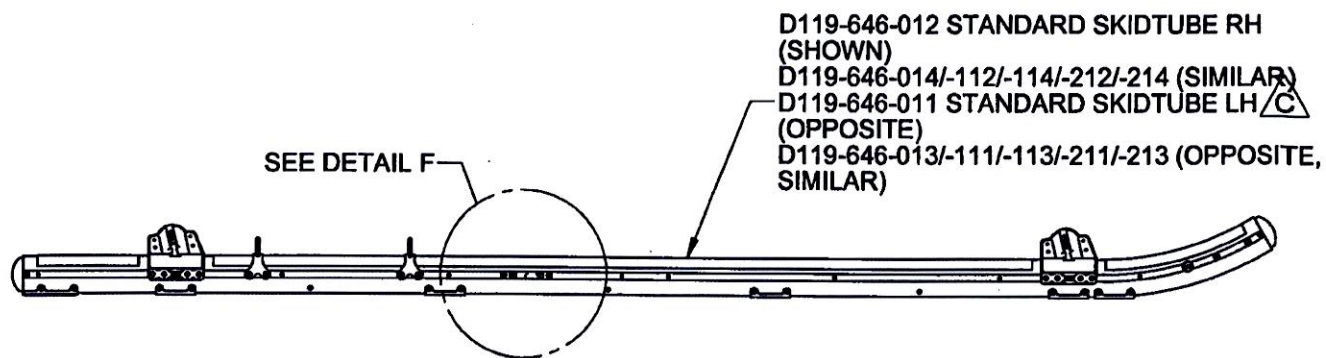
FIGURE 4: D5372-1 PLUG INSTALLATION

D5374-3 BUSHINGS ARE ONLY USED WITH SKIDTUBE ASSEMBLIES:

- D119-646-011/-012/-041/-111/-112/-141/-241 CHG 004 AND PRIOR
- D119-646-211/-212 CHG 005 AND PRIOR
- △ - D119-646-013/-014/-043/-113/-114/-143/-213/-214/-243 FLOAT SKIDTUBES

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DETAIL F

FIGURE 5: D5371-1/-2 HOOK INSTALLATION

D5374-3 BUSHINGS ARE ONLY USED WITH SKIDTUBE ASSEMBLIES:

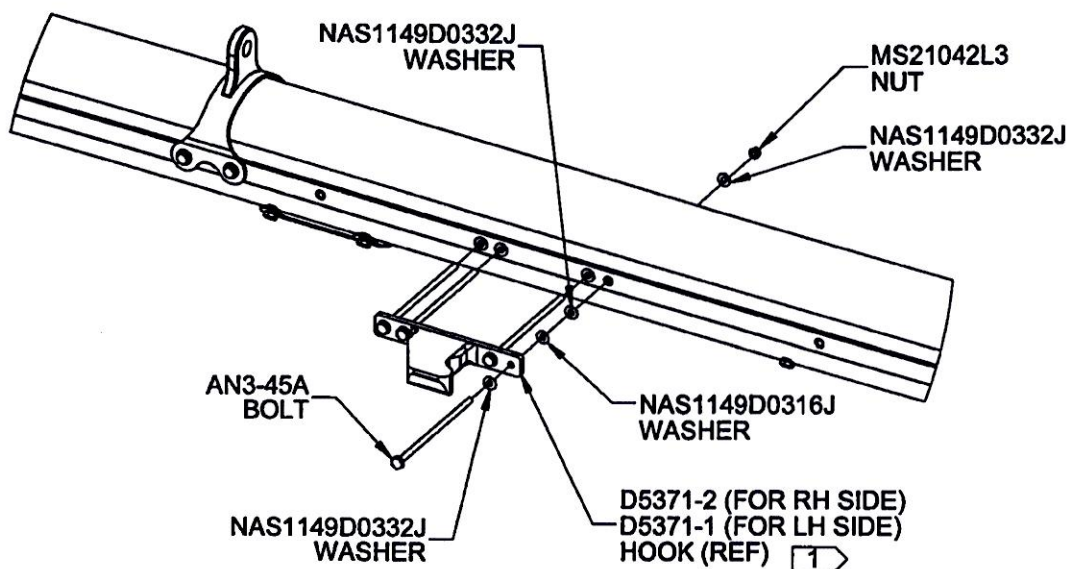
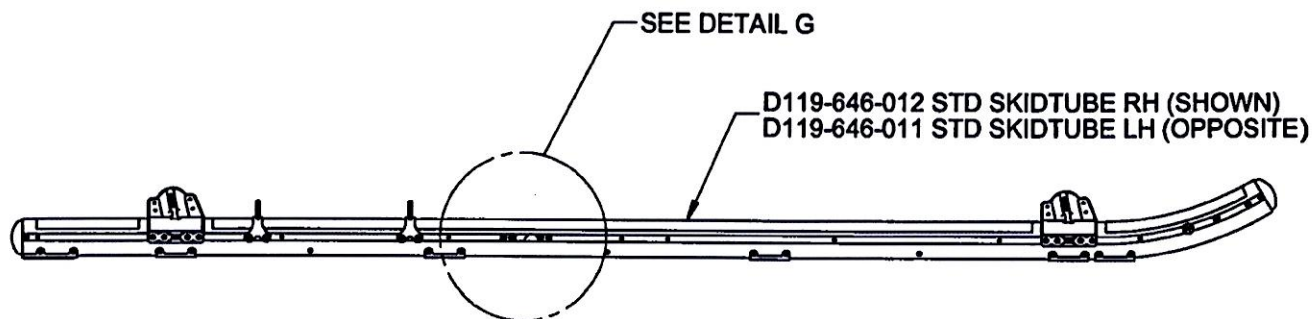
- D119-646-011/-012/-041/-111/-112/-141/-241 CHG 004 AND PRIOR
- D119-646-211/-212 CHG 005 AND PRIOR
- C - D119-646-013/-014/-043/-113/-114/-143/-213/-214/-243 FLOAT SKIDTUBES

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NOTES:

1) D5371-1/2 HOOK ASSEMBLY SHOWN, D5372-1 PLUG ASSEMBLY SIMILAR.

**DETAIL G****FIGURE 6: HOOK & PLUG INSTALLATION**

NAS1149D0316J and NAS1149D0332J WASHER BUILDUP IS ONLY USED WITH SKIDTUBE ASSEMBLIES:

- D119-646-011/-012/-041/-111/-112/-141/-241 CHG 005 AND SUBSEQUENT
- D119-646-211/-212 CHG 006 AND SUBSEQUENT

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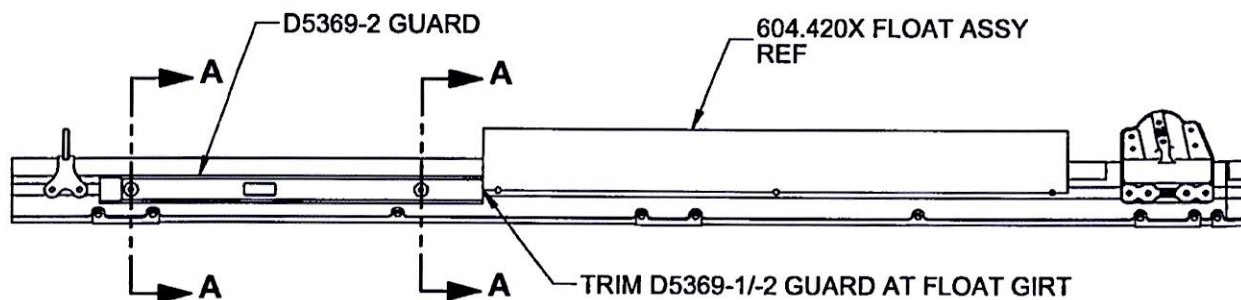


FIGURE 7: D119-646-314 SKIDTUBE PROTECTOR KIT, RH (SHOWN)
 (D119-646-313 SKIDTUBE PROTECTOR, LH (OPPOSITE))
 (SHOWN INSTALLED ON D119-646-013/-014/-113/-114 SKIDTUBES)

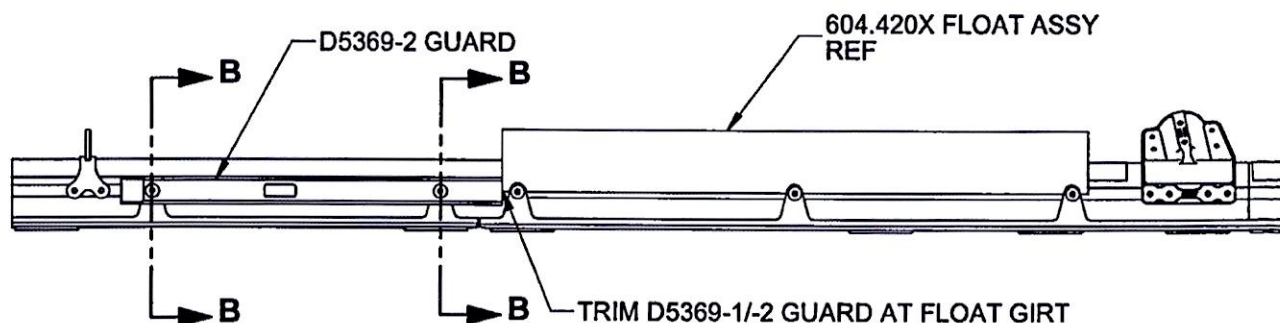


FIGURE 8: D119-646-314 SKIDTUBE PROTECTOR KIT, RH (SHOWN)
 (D119-646-313 SKIDTUBE PROTECTOR, LH (OPPOSITE))
 (SHOWN INSTALLED ON D119-646-213/-214 SKIDTUBES)

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